

26/67



6 March 1967

Ref: LJC 650

To Whom It May Concern:

As we draw closer to the delivery date of the first Multi-Purpose Data Block Reader, it becomes more and more apparent that some of the film formats that were to be Government furnished and utilized as test material for checking out the reader's performance, will not be made available. The specific formats referenced are shown in Figures 4, 5, 6, 7, 8, and 9 of our Phase I Study Report No. SME-AL-8. In absence of this test film, six out of the twelve formats that the equipment should be capable of reading cannot be checked.

On the basis that it is in our mutual interest to thoroughly check out and prove the system's capability, [redacted] submits this unsolicited proposal, which consists of this letter and the attached Technical Proposal No. SME-PR-14, dated 27 February 1967.

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We propose to cost share this effort with the Government. [redacted] Exerciser and the Recording Electronics, all of which will have to be modified to produce the required film. We request that the Government provide the funds for the labor and material required to make these modifications.

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Our quotation for the labor and material required to make the necessary modifications is [redacted]

This quotation is submitted in anticipation of a firm fixed price contract and is offered on a no profit to [redacted] basis.

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The lead time required to generate the required test film will be six weeks from the date of go-ahead. A detailed breakdown of the delivery schedule is contained in the enclosed Technical Proposal.

So as not to interfere with the delivery schedule of the Multi-Purpose Data Block Readers, the test film to be delivered under this contract should be made available to Fairchild four to six weeks prior to the equipment delivery. If the film is not ready in time for the delivery of the first unit, it is our intention to utilize it in checking out the second unit. Since both

DECLASS REVIEW by NIMA/DOD

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units are identical, any changes that will result from these tests can then be made on unit one at your facility.

We request that the equipment to be modified on this proposed contract be retained by

We trust that this proposal might be the most economical solution to the problem of checking out the Multi-Purpose Data Block Reader. If any additional information is required, please do not hesitate to contact us.

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Very truly yours,

Manager

Data Processing & Controls Systems

15 March 1967-

Proposal not accepted since MIL-STD 782B formats will not be in operational use for some time (2 years ±)

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Will furnish FSDS a waiver on testing these formats.

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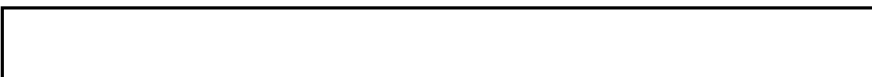
A TEST FILM FORMAT
FOR PROJECT 135

"This proposal contains information which is proprietary to the Offeror. Accordingly, this proposal shall not be disclosed outside the Offeree's organization or be duplicated, used or disclosed in whole or in part for any purpose other than to evaluate the proposal; provided, however, that if a contract is awarded to this Offeror as a result of or in connection with the submission of such proposal, the Offeree shall have the right to duplicate, use or disclose the information contained in such proposal to the extent provided in the contract. This restriction does not limit the Offeree's right to use information contained in such proposal if it is obtained from another source."

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SECTION 2

SYSTEM DESCRIPTION2.1 SYSTEM APPROACH

The production of the test film requires the following equipment:

- a) Aerial Camera and magazine (modified)
- b) Camera excerciser
- c) Recording head
- d) Recording electronics
- e) Variable data input logic and controls

For the sake of expediency and minimum expenses it is deemed best to use available existing equipment wherever possible and to modify only that which is necessary to produce the test film.

STATINTL [] will agree to supply the following existing system components:

At this time, a [] and magazine will be STATINTL made available and modified to accomodate a recording head.

STATINTL The recording head is the FLA-630 light pulser and is to be purchased from []

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The Reader's ability to transport film of different widths will be demonstrated by the remaining 6 formats, and the accuracy of the film metering will be demonstrated best by the format shown in Figure 10 of Phase I Study Report. The proposed test film will enable ☐ to check out the margin detector circuit as well as the optics, read electronics and logic associated with the 18 x 32 data block.

To accomplish these tasks, a single format with real imagery and an 18 x 32 data block between frames will be sufficient. The imagery will serve to test the margin detector under true conditions, rather than the use of fogged frames or blank film. The data block will contain variable data and will verify the reading of random information in the 18 x 32 block.

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SECTION 1

INTRODUCTION

1.1 GENERAL

During the manufacturing period of Phase II of the Multi-Purpose Data Block Reader, it became apparent that some of the GFE formats mentioned in Phase I Study Report No. SME-AL-8 will not be available in time to test the Reader's performance. These formats are shown in figures 4, 5, 6, 7, 8 and 9 of Phase I Study Report. Due to absence of test material, there are 6 out of the 12 formats that are readable by the Reader but cannot be thoroughly tested.

These formats, although different in film width, format length and data block location, have the same data block configuration, namely the 18 x 32 dot configuration dictated by MIL-STD-782B, and recorded by a fixed geometry solid state recording head.

1.2 OBJECTIVE

The purpose of this fixed price/Cost Sharing proposal is to suggest a method of producing test film which would enable ☐ to STATINTL adequately prove the ability of the Reader to process formats of the same generic type as those shown in figures 4 thru 9 of the Phase I Study Report.

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The [REDACTED] which is a [REDACTED] test fixture will be made available for use for the duration of the program.

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A set of [REDACTED] recording electronics capable of recording "all ones" will be modified to enable the addition of variable data inputs logic and controls.

2.2

CAMERA AND MAGAZINE MODIFICATION

Mechanical modification of the [REDACTED] to mount a Silicon light pulser (SLP) in place of the A.D.A.S. Cathode Ray tube and imaging system will be accomplished by limiting rework to the AEC Plate and focal plane assembly. The housing containing the mirrors and relay lens will be cut away to provide room for the Silicon Light Pulser (SLP). The opening in the focal plane and mounting plate will be enlarged to accomodate the SLP. The SLP has an integral glass protective cover and this will be mounted slightly below the focal plane plate in order to maintain the proper distance between the film emulsion and the active surface of the array. Preliminary layouts indicate that a three point mounting is possible, thus insuring parallelism between the array and the focal plane. These layouts also indicate that it will be possible to mount the head so as to position the data in the same format location as the ADAS system is designed to do, within slightly larger tolerances on the

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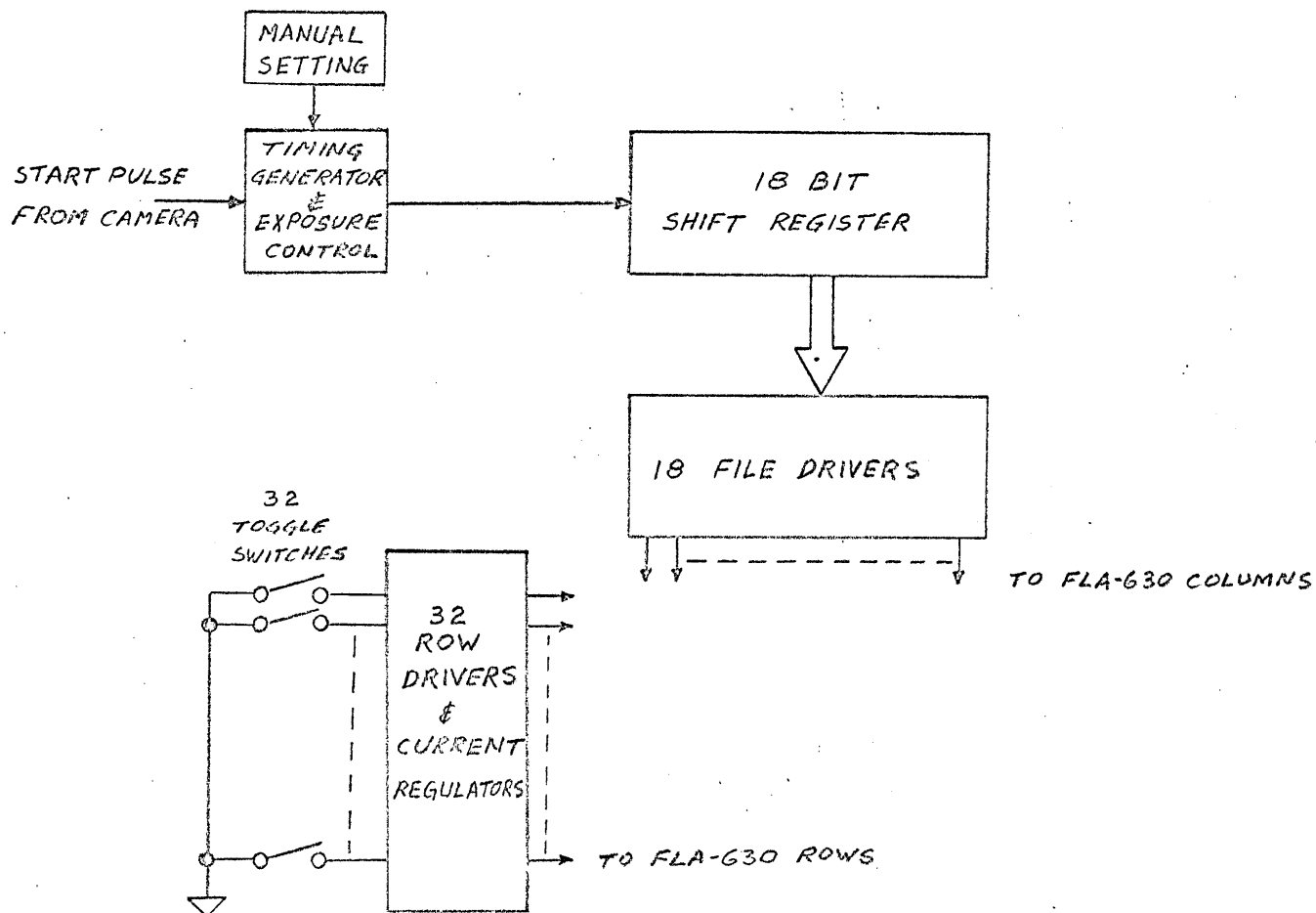
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positional accuracy due to the lack of adjustment facilities in the breadboard design. It is also required to remove one of the film retaining clips from the magazine, which will make loading of this particular breadboard camera a bit more difficult. Wiring from the SLP can be accommodated via the route planned for the A.D.A.S. system wiring. The external connector may be a problem because of the large number of conductors requires, however a pendant cable can be provided in the breadboard unit for remote location of the connector.

It is anticipated that provision will have to be made in the magazine platen to clamp the film against the format plate during the data exposure. This will be accomplished by using a solenoid actuated mechanism mounted in the magazine which will operate a clamping device in the platen over the data format area. Because of the very short stroke (less than .006 in.), this device can operate rapidly enough to permit the full 60 millisecond minimum data exposure time to be available for SLP exposure.

2.3 RECORDING FIXTURE MODIFICATION

Figure 1 shows the existing recording fixture. The timing and exposure control is manually set to correspond with camera cycling rate and film speed. When the film comes to rest in the camera, a cam



EXISTING RECORDING FIXTURE

FIGURE 1

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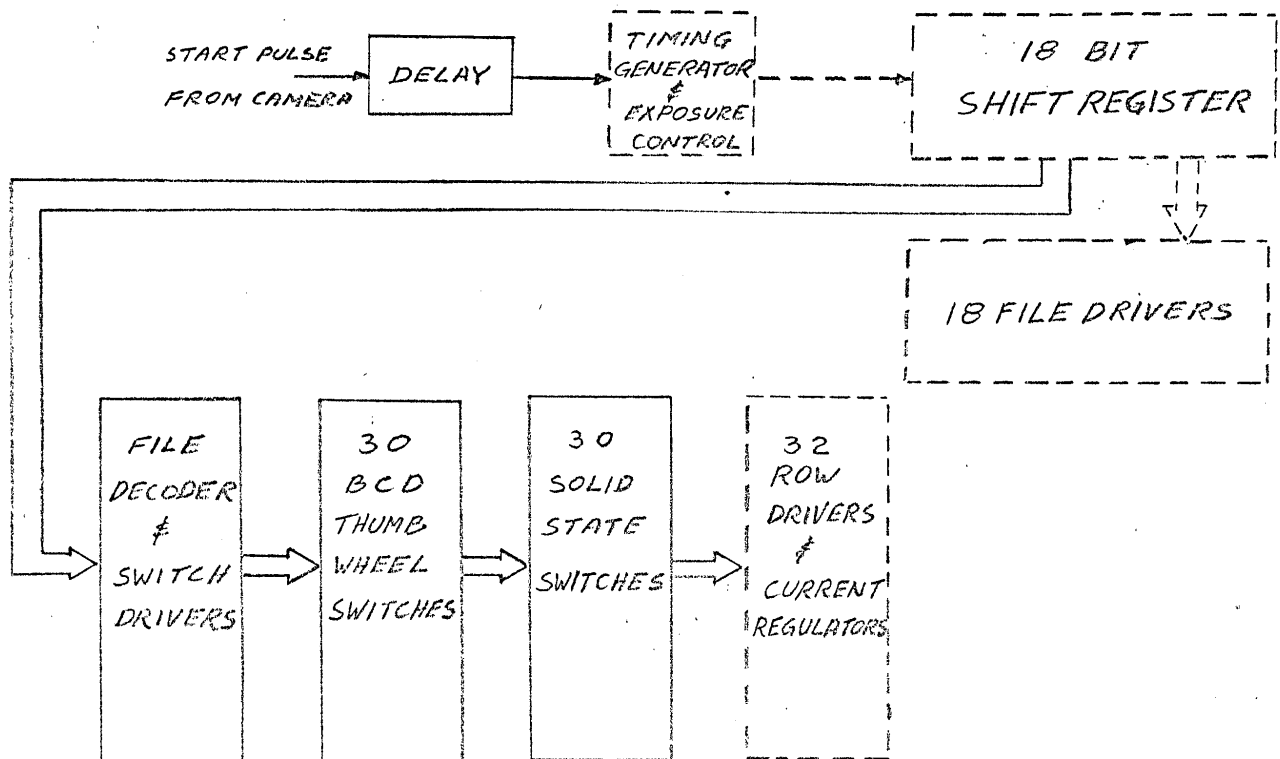
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contact initiates a recording cycle. The timing generator will then send 18 pulses to the shift register. Each pulse will turn on a file driver for the pulse duration. The 32 toggle switches will select the desired rows. However, once a row is selected, all 18 bits in that row will be recorded. This means that the existing recording fixture is capable of recording only two character codes - an "all ones" code or "all zeroes" code. Such a pattern does not constitute a proper test since it is too uniform.

By substituting solid state switches for the 32 toggle switches, the row information can be electronically changed every time a new file is selected. (See Figure 2)

The code configuration for each row will be selected manually by 30 Binary Coded Decimal thumbwheel switches. These switches will produce a 4 bit BCD character plus a parity bit. The first, seventh and thirteenth files of each block will be Index Columns and the first and thirty-second row of each block will be Index Rows. The column selection codes will be decoded to select the proper legs of the thumbwheel switches and energize the switch drivers.

The camera start pulse will be delayed to allow the solenoid actuated clapper to seat the film against the recording head.



MODIFICATION OF RECORDING FIXTURE

FIGURE 2

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2.4 FORMAT CONFIGURATION

The resulting data block will consist of three identical columns. Each containing the same data. The data in each column will vary from character to character. The characters in the data block will be coded in straight 1-2-4-8 BCD, and not in Excess Three BCD, since 1-2-4-8 BCD thumbwheel switches are more readily available.

The same data block will be repeated thru 10 to 20 frames and then the camera will be stopped, the data pattern changed, and the camera will be recycled for 10 to 20 blocks. Some of the frames will be fogged, but most of them will have indoor and outdoor images. These will not be aerial photographs, but will be taken inside our lab, and from the roof and backyard of However, they will contain varried pattern which will be representative of an aerial photograph and will be sufficient to prove the reliability of the margin detector.

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As a result of this program, a test film will be produced with the characteristics discussed above, and approximately 500 feet in length.

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SECTION 3

SCHEDULE3.1 DESIGN

The design phase for modification of the mechanical and electronic equipment will take two weeks.

3.2 MODIFICATION

The fabrication phase, including lead time for purchased components will last four weeks and overlap the design phase by one week.

3.3 FILM FABRICATION

The film fabrication phase, including experiments to determine the best exposure parameters will last three weeks and overlap the modification phase by two weeks.

3.4 PROGRAM DURATION

The total program duration will be 6 weeks and result in 500 feet of 5" test film.